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ABSTRACT

The paper reports on the evaluation of Project ESPIRIT (Educational System in Parenting for the Retarded with Infants and Toddlers), a home based program for normal children of retarded mothers. Research problems are cited, such as instability of the experimental group. Preliminary results of analysis of four treatment variables and the criterion measure, the Bayley Scales of Infant Development (BSID), indicated that the BSID for seven project infants remained at or above the statistical average of the test for all three administrations. In addition, investigation of time utilization indicated a steady improvement in how available project and client time was used. (CL)

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# EVALUATION OF A HOME BASED PREVENTION PROJECT FOR HIGH RISK INFANTS WHOSE PARENTS ARE MENTALLY RETARDED: PRELIMINARY REPORT/PROJECT ESPRIT

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# EVALUATION OF A HOME BASED PREVENTION PROJECT FOR HIGH RISK INFANTS WHOSE PARENTS ARE MENTALLY RETARDED: PRELIMINARY REPORT/PROJECT ESPRIT

## INTRODUCTION

The goal of any research effort in the behavioral/social sciences is to introduce in one's design sufficient control so that one can argue with a measure of assurance that one variable, event, or process is related to or is responsible for a specific outcome. Because one must introduce the control prior to the use of the design, that is, before the actual introduction of the treatment under systematic conditions, it would seem that the task should be fairly straightforward. However, given the nature of the variables in the behavioral/social sciences, the goal is rarely, if ever, achieved. Consequently, researchers are consistently faced with the admonition to interpret results cautiously and to refrain from making grandiose statements regarding the remarkable results which their respective treatments have produced. Considering the nature of the times, when continued program or project funding is contingent on both effectiveness as well as efficiency, it is essential that one not only design but also conduct program or project activities in a systematic way so that the evaluation of those activities will indicate whether the activities are really worthwhile. It is a situation in which one has the opportunity to select or create a design that will answer or argue the points which are of most concern to the program or project staff. The situation is as an original member of the

"Technical Advisory Committee for Evaluation for Head Start" wisely or cynically observed in 1965:

> Those of you who feel this thing should be evaluated want to make absolutely certain about one thing. You don't want to design any kind of evaluation that will show that Head Start does not do all the things we are claiming it will do. (Caldwell, 1977, p. 148)

For those of us who work with a rather unique and high risk population, that is, the normal infants of mothers who are mentally retarded, this issue is doubly important. The twofold nature of the importance involves not only the growth and development of the infants themselves but also the general socio-political environment in which the EVALUATION is conducted. The first area of importance is obvious and self-explanatory. The individual and societal ramifications of abnormal and significantly abnormal development are both unfortunate and taxing. The socio-political dimension is also important because it is within this area that the nonresearch variables of funding, public support, and professional credibility are ultimately manipulated and assessed.

The history of the Milwaukee Project is illustrative. Because the original impetus for the development of Project ESPRIT came from the reported success of the Milwaukee Project, the growing professional and public concern about the quality of that research (Hallahan & Kauffman, 1978; Kirk & Gallagher, 1979; Page, 1972) and the professionalism of the researchers is at least troublesome. The fact that a final report from this nationally known and frequently touted project has not been published is problem enough. The additional difficulties involving both the soundness of the research program and the activities of the senior researcher (Fixmer, 1981) are sufficient to require that all projects insure that

their program evaluation research designs withstand rigorous professional criticism as well as public scrutiny. If the results of a project indicate that a particular treatment has been partially or fully effective in meeting well delineated outcome measures, then we must be able to demonstrate that what was done and how it was done were systematically studied. The research design of a project or program is then the first and most important evaluation issue to be resolved.

## DESIGN

A review and analysis of the various designs which have been employed in Bureau of Education for the Handicapped/Handicapped Children's Early Education Program funded projects reveal that there is as much confusion as agreement as to what kinds of evaluation designs ought to be used. Although it is clear that pre-experimental designs are strongly discouraged and that true experimental designs are next to impossible, if not simply unethical, the resolution of the problem is not definite and probably revolves around the use of guidelines. Sheehan (1979) suggests the use of three basic questions not only to select or create a design but also to choose an instrument with which to gather data:

1. Considering the children with whom you are working, what type of argument do you want to make with your documentation efforts regarding children's growth and development.

2. What type of comparison can you (must you) make in your evaluation design to insure that your results do not occur by chance?

3. How frequently can you (must you) gather data in children's progress? (p. 81)

The original program of evaluation research proposed for Project ESPRIT was based upon a quasi-experimental design (Campbell & Stanley, 1966; Dunst, 1979). This research model was actually a combination or synthesis of a nonequivalent control group design and a rotational non-equivalent control group design. Although it was initially understood that various shortcomings existed in terms of threats to both internal as well as external validity, it was argued that the approach was adequate, if not optimal. Nonetheless, various assumptions were specified to indicate the areas in which the threats were the greatest. In addition to the technical assumptions specific to quasi-experimental designs, certain other key assumptions were made regarding the stability of the initial 15 Project families (Experimental Group) as well as the availability of 15 stable families from the Project's waiting list to serve as the Control Group. During the first two months of the Project's implementation (January & February, 1980), it became clear that very few of these assumptions were being met. The assumption most consistently violated involved the stability of Project families. In fact, the instability of the Experimental Group was so great that the Control Group was reduced by one third so that the service slots created by the attrition of 5 of the initial 15 Experimental Group families could be filled from the Control Group. Although the immediate consequence was the destruction of the Control Group, a more serious problem was the realization that the "treatment" was not being equally applied within the Experimental Group. That is, both in terms of actual time allocated to instruction and the opportunity to learn the skills and knowledge sampled in the post-test, the infants within the Experimental Group were not getting the same

treatment. The decision to identify another design was quickly made.

Cooley (1978) has offered an alternate approach to the "tic tac toe tables" of O's and X's used to describe the observations and treatments in the research design originally proposed. The approach recommended by Cooley utilizes a structural or causal modeling design that necessitates an explicit delineation of the "established and hypothesized casual relationships among the variables under investigation" (1978, p. 11). For instance in a recent report on the effectiveness of compensatory education, Cooley and Leinhardt (1980) investigated the casual relationships among 4 major variable constructs and the achievement score gains between pretest and posttest. The four major variables were Opportunity, Motivation, Instructional Events, and Structure.

Of all the structural relationships, only Opportunity was significantly related to gain (pretest was obviously related to posttest and more significantly than any other variable). Opportunity was defined and measured in terms of the time and actual activities available to learn what would be tested in the criterion performance measure. The other three variable constructs were Motivators, Instructional Events, and Structure. Interestingly, Instructional Events and Structure have combined to reflect what has traditionally been regarded as individualized instruction.

The implication of these findings to the evaluation research design of Project ESPRIT was apparent. That is, a research model was needed to identify and investigate the factors that may contribute toward the maintenance of the Project infants' normal development. Initially, the decision to use this approach required that an adequately specified model be developed so that the relationships among the appropriate variables could be assessed.

Four treatment dimensions or variables were identified as basic components of the Project's home based treatment model. The four variable groups were selected because of their assumed relationship to the performance of the Project infants on the criterion measure, the Bayley Scales of Infant Development (BSID). The four dimensions are: a) Engaged Time-Worked with Parent (WP); b) Engaged Time-Worked with Child (WC); c) Engaged Time-Other (O); and, d) Opportunity. Engaged time for the first three variables refers to the amount of time actually involved in treatment. All three categories of engaged time are distinct. Engaged Time-Work with Parent refers to assessment, intervention, assistance, or activities that are directly related to the individual program plan (IPP) that has been developed for the parent. This category is limited to planned or improvised educational efforts based on the parent's IPP. Engaged Time-Work with Child refers to assessment, intervention, assistance, or activities that are directly related to the individual education plan (IEP) that has been developed for the child. The WC category is limited to planned or improvised educational efforts based on the child's IEP. Engaged Time-Other refers to assessment, intervention, assistance, or activities that are not related to either the parent's IPP or the child's IEP and occur as a result of immediate, situational need. The O category includes the subcategories of assessment/evaluation, socialization, counseling/support, medical, crisis intervention, and advocacy. The fourth variable, Opportunity, refers to the actual activities taught and their overlap with the skills and knowledge tested on the BSID. Opportunity is included to determine if what has been assessed has been taught as part of either the infant's or the parent's instructional plan.

The use of the BSID as a repeated pretest/posttest measure permits quarterly measures of the infant's development that can be compared to the sample of infants upon which those Scales were standardized. The structure of the data collection system provides the necessary framework to determine not only how much time was allocated to direct instruction, but also how all other contact time was spent between each quarterly assessment. An important point to be made is that research hypotheses, in the traditional sense, are not being tested. Rather, actual or logical relationships are being studied in an explanatory observational fashion in order to determine the strength of those relationships (Cooley, 1978). An outcome of this approach is an improved knowledge base upon which decisions regarding the future allocation of instructional and supportive resources can be more effectively made. However, because the size of the research population will not exceed 25 infants at any one time, the appropriate statistical tests cannot be applied. The sample size requirement for explanatory observational studies is quite large (Cooley & Lohnes, 1976). Basic correlational techniques will have to suffice instead of the more elaborate and sophisticated tests utilized by Cooley and Leinhardt (1980).

## RESULTS-PRELIMINARY

The results that will be presented in this paper cover the first full year of intervention beginning in January, 1980. Therefore, what follows is a very preliminary report about the Project's activities. The nature of the Project's evaluation research design provides the capability to gather data about both individual clients as well as the

overall project. Because the intervention involves not only infant stimulation but direct parent training as well, it is important to describe basic characteristics of the mentally retarded mothers whose normal infants are involved in this prevention effort. Table 1 presents very basic information about the 27 mothers who were involved in the Project during the first year.

TABLE I

AGE AND IQ OF PROJECT MOTHERS'

| | Mean | S D | Range |
|---|---|---|---|
| Age | 25.48 | 5.67 | 17-38 |
| IQ | 61.21 | 10.07 | 41-76 |

[1]N = 27

Neither the average age (Mean = 25.48) or age range (Range = 17-38) of the mothers nor their average IQ (Mean = 61.21) or IQ range (Range = 41-76) are remarkable. What is noteworthy about this group of mentally retarded mothers is that over 75% of them are living with the child's father and over 80% of those fathers are regarded as having a significant role in their child's development. These two observations seem to indicate that attributes such as a female-only parent and a matriarchial dominated household which characterize a large segment of the urban poverty level population do not apply to this group.

Table 2 presents the results of the standardized testing that was conducted during the first year. Although the BSID was to have been the only repeated pretest/posttest measure, as each infant's age exceeded 30 months, the Stanford Binet Intelligence Scale was substituted as the standardized measure.

TABLE 2

QUARTERLY SCORES AND AGES OF INFANTS ON THE BSID AND STANFORD BINET INTELLIGENCE SCALE

| | First[5] | | Second[6] | | Third[7] | | Fourth | |
|---|---|---|---|---|---|---|---|---|
| | Mean | S D | Mean | S D | Mean | S D | Mean | S D |
| MDI[1] | 98.76 | 19.06 | 89.5 | 18.99 | 103.4 | 16.71 | - | - |
| PDI[2] | 99.69 | 15.94 | 90.9 | 17.44 | 91.5 | 20.04 | - | - |
| SB[3] | - | - | - | - | 86 | 6.79 | - | - |
| CA[4] | 6.98 | 4.8 | 15.18 | 7.56 | 23.14 | 5.5 | - | - |

1 BSID Mental Development Index
2 BSID Psychomotor Development Index
3 Stanford Binet Intelligence Scale
4 Chronological Age in Months
5 N = 26
6 N = 11
7 BSID N=5; SB N=2

These test scores show that at the time of the first admininstration of the criterion measure the infants were functioning very near the average score of the instrument itself. The mean of the BSID is 100 for both the Mental Scale and the Motor Scale. The standard deviation for the two BSID scales is 16. The average scores of the infants at the first administration were a Mental Development Index (MDI) of 98.76 and a Psychomotor Development Index (PDI) of 99.69. Although the average MDI and PDI dropped to 89.5 and 90.9 at the second administration, the scores at the third administration were an average MDI of 103.4 and an average PDI of 91.5. For the two infants who were administered the Stanford Binet Intelligence Scale at the third administration, their average IQ score was 86. All of these averages fall well within normal limits.

The information which has been obtained from an investigation of how the Project operates in terms of utilization of available "Project" and "Client" time is presented in Table 3 for the four calender quarters of 1980.

TABLE 3

PROJECT/CLIENT TIME
UTILIZATION FOR FOUR CALENDER
QUARTERS 1980

| Quarter | Utilization:Clients In Project | Utilization:Trainers Available To Clients | Utilization:Actual Client Contact | Utilization: Down Time |
|---|---|---|---|---|
| First | 75.6% | 58.6% | 64.8% | 35.2% |
| Second | 82.3% | 65.0% | 71.9% | 28.1% |
| Third | 90.9% | 72.8% | 90.2% | 9.8% |
| Fourth | 92.6% | 83.6% | 67.7% | 32.3% |

The percentages indicate that accept for the percentage of time actually engaged in client contact for the fourth quarter of 1980 there was a steady improvement in how available "Project" and "Client" time was utilized. Initially the Project was operating at only 75% of capacity whereas at the end of the year, the utilization figure in terms of clients in the Project had risen to over 90%. Similarly, the availability of staff-for-training utilization figures increased from a low of 58.6% at the beginning of the year to 83.6% at the end of the year. Although there was an increase in the percentage of time actually spent in training through the first three quarters of 1980, the 67.7% utilization figure for the Fourth Quarter appears to reverse this desirable trend. Since there was a number of staff transportation problems during this time period, the reduction may reflect an inability to get to the training sessions rather than an inappropriate or ineffective utilization of time.

## CONCLUSION

The results from the first year of intervention constitute a very preliminary report. Twelve months does not a 36 month Project make. Nor do the growth and development patterns of the first three years of life represent what will follow for the next 20 years. Nevertheless, the results are basically encouraging. This is especially true for the seven infants who have been in the Project since its begining. That is, including the second administration, the average score on the BSID for these seven infants has remained at or above the statistical average of the test for all three administrations. Unfortunately a computer based, detailed analysis of the relationships among the four variable groups specified in the research evaluation design has not been completed. The results of that analysis will be reported separately. At this point, the aggregate figures for engaged time will provide, at the least, feedback which can be used to insure that Project ESPRIT infants and their mentally retarded mothers will receive the maximum amount of intervention possible.

## REFERENCES

Caldwell, B.M. Evaluating program effectiveness. In B.M. Caldwell and D.J. Stedman (Eds.), Infant education: A guide for helping handicapped children in the first three years. New York: Walker and Company, 1977.

Campbell, D.T. & Stanley, J.C. Experimental and quasi-experimental designs for research. Chicago:Rand McNally, 1966.

Cooley, W.W. Explanatory observational studies. Educational Researcher, 1978, 7 (9), 9-15.

Cooley, W.W. & Leinhardt, G. The instructional dimensions study. Educational Evaluation and Policy Analysis, 1980, 2 (1), 7-25.

Cooley, W.W. & Lohnes, P.R. Evaluation research in education. New York: Irvington Publishers, 1976.

Dunst, C.J. Program evaluation and the Education for All Handicapped Children Act. Exceptional Children, 1979, 46 (1), 24-31.

Fixmer, R. Howard Hughes lifestyle makes Heber hard to find. Capital Times, Jan. 23, 1981.

Hallahan, D.P. & Kauffman, J.M. Exceptional children: Introduction to special education. Englewood Cliffs, New Jersey: Prentice Hall, 1978.

Kirk, S.A. & Gallagher, J.J. Educating exceptional children. Boston: Houghton Mifflin, 1979.

Page, E.B. Miracle in Milwaukee:Raising the IQ. Educational Researcher, 1972, 1 (10), 8-10, 15-16.

Sheehan, R. Documenting child progress: How do you choose data collection designs and instruments? In T. Black (Ed.), Perspectives on measurement: A collection of readings for educators of young handicapped children. Chapel Hill:TADS, 1979.